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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,346	09/09/2003	Royden M. Honda	MN1-006US	2107

29150 7590 05/09/2005  
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EXAMINER

DINH, TRINH VO

ART UNIT PAPER NUMBER

2821

DATE MAILED: 05/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/658,346

Applicant(s)

HONDA ET AL.

Examiner

Trinh Vo Dinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on amendment filed 03/17/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 36-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-22 and 36-47 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>02/28/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This is a response to amendment filed 03/17/2005. The claim objections have been withdrawn in view of the amendment. However, Applicant's arguments with respect to the reference Takahaski are not deemed to be persuasive. Therefore, the rejections of claims 1-19 and 36-47 based on Takahaski are retained and repeated for the following reasons. The amended claims 7 and 20 necessitate drawing objections. In addition, the amended claims 20-22 necessitate a new ground of rejection as discussed below.

#### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "an adjacent antenna element" in claim 7 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

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pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 9, 11-19 draw to the apparatus and method claims 36-37 and 41-47 remain rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al (US 5,416,492 of record).

With respect to claim 1, Takahashi discloses an antenna element (Figs. 1-2 col. 4, lines 30-35) a front plate (2) that includes slots (17) configured for wireless communication signal transfer, a dielectric (12) configured to regulate a cutoff wavelength of the antenna element (col. 5, lines 17-40), a channel guide (1) coupled to the front plate and configured to confine the dielectric in a position that aligns the dielectric with the slots in the front plate, and a back plate (18) coupled to the channel guide and configured to enclose the dielectric within the channel guide to form an enclosed dielectric channel.

With respect to claims 9, 11-12, 15-16 Takahashi discloses, in Fig. 46, the front plate including a first row of one or more of the slots (31) and a second row of one or more of the slots (31), and the slots in the first row are offset from the slot in the second row in a direction parallel to the first row and a distance that is substantially a length of the slot. Takahashi furthermore

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discloses an offset slot is substantially rectangular having an offset section formed about a traverse center of the offset slot.

With respect to claims 13-14, Takahashi discloses, the slots in the front plate being substantially rectangular (21 in Fig. 1), or notched slots (Fig. 46),

With respect to claim 19, Takahashi discloses a waveguide being in used in an antenna assembly (abstract, col. 4, lines 30-35).

With respect to claims 17-18, Takahashi discloses, in Figs. 61, 63, 65 or col. 15, lines 49+, a connection system configured to communicatively coupled the antenna element to tan antenna system component (64, 65, 74, 77), an RF connection system (col. 15, lines 65-68) configured to communicatively coupled the antenna element to an antenna system component.

With respect to claims 36-37 and 41-47, the apparatus discussed above would perform the claimed method.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Kishino et al (US 6,094,106 of record).

Takahashi discloses every feature of the claimed invention except the dielectric being formed from a polystyrene material. Kishino discloses a dielectric being polystyrene (col. 1, lines 29-31). It would have been obvious to one having ordinary skill in the art at the time the

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invention was made to use polystyrene for forming the dielectric because of its easy process ability.

6. Claims 3-6 draw to the apparatus and the method claims 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Piloto et al (US 5,382,931 of record).

With respect to claims 3-5, Takahashi discloses every feature of the claimed invention except the dielectric including a center conductive section and one or more cross section transverse to the center conductor section. Piloto discloses, in Fig. 1, a dielectric (12) having a center conductor section and one or more cross sections perpendicular to the center conductive section and transverse to the center conductor section (col. 3, lines 28-54). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure Takahashi's dielectric in the manner as taught by Piloto. Doing so would improve the cutoff wavelength of antenna element.

With respect to claim 6, Takahashi further discloses, in Figs. 46-47, the center conductive section (12) extending lengthwise within the enclosed dielectric channel between a first row of the slots and a second row of the slots (31).

With respect to claims 38-40, the apparatus discussed above would perform the claimed method.

7. Claims 8, 10 draw to the apparatus and the method claims are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Hoover et al (US 5,757,329).

Takahashi discloses substantially the claimed invention as noted above in claim 1. Takahashi also discloses, including in the first plate, the slots spaced apart a distance of

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antenna's wavelength divided by two. Hoover discloses a plate (44) including slots (56) spaced apart a distance of  $\frac{1}{2}$  the wavelength (col. 9, lines 9-25). Since one of ordinary skill in the art would recognize the benefit of improving the performance and the electrical characteristic of the antenna element, it would have been obvious to configure the slots with  $\frac{1}{2}$  wavelength space apart as taught by Hoover.

8. Claims 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (US Patent 5,596,338) in view of Takahashi.

With respect to claim 20, Smith discloses an antenna assembly (10 in Fig. 1 or col. 2, lines 15-16) comprising antenna elements (12 in Fig. 1 or col. 2, line 16) each formed as a waveguide (20, col. 2, line 19). However, Smith does not suggest the waveguide enclosing a solid dielectric. Takahashi discloses a waveguide (abstract, or in Fig. 1) enclosing a solid dielectric (12). It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ Takahashi's waveguide to Smith's antenna assembly in order to provide the antenna with compatible configuration and allow efficient use even in high-frequency bands (Takahashi: col. 1, lines 60-65).

With respect to claim 22, Takahashi discloses a front plate (2) that includes slots (17) having communication signal transfer slots (17, col. 5, lines 49+), a channel guide (1) coupled to the front plate and configured to confine the solid dielectric (12) in a position that aligns the solid dielectric with the communication signal transfer slots (17), and a back plate (18) coupled to the channel guide and configured to enclose the solid dielectric within the channel guide.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith as modified by Takahashi in view of Piloto et al (US 5,382,931).

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Smith as modified by Takahashi discloses every feature of the claimed invention except the dielectric including a center conductive section and one or more cross section transverse to the center conductor section. Piloto discloses, in Fig. 1, a dielectric (12) having a center conductor section and one or more cross sections perpendicular to the center conductive section and transverse to the center conductor section (col. 3, lines 28-54). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure Takahashi's dielectric in the manner as taught by Piloto. Doing so would improve the cutoff wavelength of antenna element.

***Allowable Subject Matter***

10. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and rewritten to overcome the objection set forth in the office action.

11. The following is a statement of reasons for the indication of allowable subject.

The cited art of record fails to teach the channel guide including at least a first sidewall and a second sidewall, and wherein the first sidewall and the second sidewall are each configured to prevent communication signal interference between the antenna element and an adjacent antenna element.

***Response to the arguments***

12. Regarding claims 1 and 36, Applicant argues, in pages 11-12 of the argument, that the Takahashi reference fails to show an antenna element. The examiner respectfully disagreed. An antenna element is clearly shown in Figs. 1-3 and col. 4, lines 30-35. In addition, the Applicant



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states “there is no channel guide between the dielectrics”. However, the feature of channel guide between the dielectrics is not recited in claim 1.

Regarding claim 9, the Applicant argues that Takahashi does not show “first and second row of slots”. The Examiner respectfully disagreed. Takahashi discloses, in Fig. 46, slots (31) are configured as first and second rows of slots.

Regarding claim 19, Applicant argues that Takahashi does not disclose multiple antenna elements. Claim 19 recites “one or more antenna elements”. A word “or” excludes more antenna elements. Therefore, one antenna element of Takahashi reads on the claimed limitation of “one or more antenna elements” of claim 19. In other words, it is not required more than one antenna element to anticipated claim 9.

For the above reasons, 102 rejections of claims 1, 9, 19 and 36 are proper.

With respect to the rejections of dependent claims 2-6, 8, 10-18 and 37-47 which employing the additional teaching of Takahashi and Piloto, Applicant has not offer any specific argument thereagainst. Accordingly, no further comments concerning the rejections of the dependent claims are necessary.

### ***Conclusion***

13. Applicant’s amendment necessitated the new ground of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final/ action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Inquiry***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trinh Vo Dinh whose telephone number is (571) 272-1821. The examiner can normally be reached on Monday to Friday from 9:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'Trinh Vo Dinh', with a long horizontal flourish extending to the right.

*Trinh Vo Dinh  
April 20, 2005*